### FIG. 1 csg1

GCCAGGCAGCTGCCSACCAGGCCGTGTATGTGAAGGTCAAGGCTGAAGCCCGGGAA LAAXQAVYVKVKA CTGCTGGGCCACCCGTGGTCTCTGTCTGTCTGTGGGTGCCAACTCACCACCTTTGAT SLCPVCGCQL 3

GGGGCCCGTGGTGCCACCACTCTGCTGTGTATGAAGCTCTCTTCCCGCTGCCCAGGA G A R G A T T L L V S M K L S S R C P G S TLLVSMRL

CTACAGAATACCATCCCCTGGTACCGTGTAGTTGCCGAAGTCCAGATCTGCCATGGCAAA TIPWYRVVAEVQICHG **ACGGAGGCTGTGGGCCAGGTCCACATCTTCTTCCAGGATGGGATGGTGACGTTGACTCCA** AVGQVHIFFQDGMVTLT

AACAAGGGTGTGTGGTGAATGGTCTCCGAGTGGATCTCCCAGCTGAGAAGTTAGCATCT V W V N G L R V D L P A E K L A GTGTCCGTGAGTCGTACACCTGATGGCTCCCTGCTAGTCCGCCAGAAGGCAGGGGTCCAG V S V S R T P D G S L L V R Q K A G V Q GTGTGGCTTGGAGGTGGCTGTGATTGTGAGCAATGACCATGCTGGGAAA GKVAVIVSNDH CTGTGTGGGGGCCTKTGGAAATTTGACGGGGGCCAGACCAATGATTGGGATGATTCCC **AGGAGAAGCCAGCGATTGGGAAWTGGAGGCGCAGGGACTTTCTYCCMCATGTTAATGG** G G L X

GCTTGWTCCAGTTCATCCCACCAGGAACGAAGGATTTT

## FIG. 2A CSG2

CAGGACTGCGTGTGCACGGACAAGGTGGACAACACCCTGCTCAACGTCATCGCCTGC NNTLLNV Д > × Ω O D C V C T

ACCCACGIGCCCIGCAACACCICCIGCAGCCCIGGGITCGAACTCAIGGAGGCCCCCGGG ы E L Ŀų ပ വ ഗ လ လ ۲ z

GAGTGCTGTAAGAAGTGTGAACAGACGCACTGTATCATCAACGGCCCGACAACCAGCAC z Ω Δ, ĸ × н U 二 E-I ы ပ × ×

GTCATCCTGAAGCCCCGGGGACTTCAAGAGCGACCCGAAGAACAACTGCACATTCTTCAGC z z ¥ ۵, Ω ഗ × ĹĽ, Ω U

TGCGTGAAGATCCACAACCAGCTCATCTCGTCCGTTTCCAACATCACCTGCCCCAACTTT U ۲ н z ഗ Ŋ Ŋ Н H O Z H X H

GATGCCAGCATTTGCATCCGGGCTCCATCACATTCATGCCCAATGGATGCTGCAAGACC ပ N d E E SIT U Δ, μ

TGCACCCCTCGCAATGAGACCAGGGTGCCCTGCTCCACCGTCCCCGTCACCACGGAGGTT P V T STS C) > **%** ٤٠ ы z ĸ

TCGTACGCCGGCTGCAACAAGACCGTCCTCATGAATCATTGCTCCGGGTCCTGCGGGACA U Ŋ Ö Z Σ ᆸ > ۲ × ۲ U ပ

## FIG. 2B csg2

TITGICATGIACTCGGCCAAGGCCCAGGCCCTGGACCACAGCTGCTGCTGCTGCAAAGAG Ú ഗ нΩ K A Q A L K ഗ

GAGAAAACCAGCCAGCGTGAGGTGGTCCTGAGCTGCCCCAATGGCGGCTCGCTGACACAC GSLT EVVLSCPNG 8 8 S

ACCTACACCCACATCGAGAGCTGCCAGTGCCAGGACACGGGTTTGCGGGGTTCCCCGGGC ပ ပ ESCOCODTV

ACCTCCCGCCGGGCCCGGGTTCCCCTAGGCATCTGGGGAGCGGGTGAGCGGGTGGGCA

CAGCCCCTTCACTGCCCTCGACAGCTTTACCTCCCCCGGACCCTCTGAGCCTCCTAAGCT CGGCTTCCTCTTCAGATATTTATTGTCTGAGTTTTTTGTTCAGTCCTTGCTTTCCAATA

ATAAACTCAGGGGGCATGCAAAAAAAAAAAAA

## FIG. 3A csg3

ATTGGTGCTACCTGGCTCTCTGCAGCTCTACAGGTGAGGCCCCAGCAGAGGGAG TAGGGCTCGCCATGTTTCTGGTGAGCCAATTTGGCTGATCTTGGGTGTCTTGAACAGCTAT TTATAGAGGCCCAAAGAGCTCCTGTAAGAGGGGAGAACTCTATCTGTGGTTTATAATCTT GGCTGCTTCAAAGGCCAGAGTCACAGGAAGGACTTCTTCCAGGGAGATTAGTGGTGATGG TGGGTCCACCCCAGTCCCTTTCAGCTGCTTTAATGCCCTGCTCTCTCCCTGGCCCACC ACCATGAGATCGGTCCAAGAGTCCATTCCCCAGGTGGGAGCCAACTGTCAGGGAGGTCTT TCCCACCAAACATCTTTCAGTTGCTGGGAGGTGACCATAGGGCTCTGCTTTTTAAAGATAT TTCTAATGCAAGGGTCTCACACTGTGAACCACTTAGGATGTGATCACTTTTCAGGTGGCCA AGAGGAGAGTTAAAATGACCTCATGTCCTTGTCCACGGTTTTTGTTGAGTTTTTCACTC 

### FIG. 3B csg3

GAGTTGTACATATGTTTCACAGTACAGGATCTGTACATAAAAGTTTTCTTTTCTAAACCAT AACGCTCCTCTGAAATGCTTGTTTTTTTTTTTTTGCCGAAATAGCTGGTCCTTTTTTCGGG AGAGCCAAGGAAATTGGCTCTGGTTTTGGAAAATTTTTGCTGTTATTATAGTAAACATACA **AGITAGATGTATAGAGTGTTTTGTATGTAACATTTTCTTGTAGGCATCACCATGAACANAG ATATATITITICTATITIANITIANITIATIGICCACTICCAGAGAGGICACTGICAGAGAAATAAA** GAATTGTCTTAAATGTCATGATTGGAGATGTCCTTTTGCATTGCTTGGAAGGGGGTGTACCT TCACCAAGAGCCAATATCTAGGCATTTCCTCGGTAGCACAAATTTTCTNATTGCTTAGAA AATTGTCCTCCCTGTTCTTTCTGTCTGNAGACTTAAGTGAGTTAGGTCTTTAAGGAAAGC AAGGATGTC

#### FIG. 4 CSG4

ATGAGTCCTGTGAAAAACAATGTGGGCCAGAGGCCTAAACATCGCCCTGGTGAATGGAACC Z Z G დ დ > z × >

ACGGGAGCTGTGCTGGAAGAAGGCATTTGACATGTACTCTGGAGATGTTATGCACCTA S >-Σ Ω K **⇔** G > -

GTGAAATTCCTTAAAGAAATTCCGGGGGGTGCACTGGTGCTGGTGGCGTCCTACGACGAT . > ᆸ > J K G ပ Δ, н ы × H

CCAGGGACCAAAATGAACGATGAAAGCAGGAAACTCTTCTCTGACTTGGGGAGTTCCTAC Ŋ J × ĸ S ы Ω z Σ × U

GCAMAACAACTGGGCTTCCGGGACAGCTGGGTCTTCATAGGAGCCAAAGACCTCAGGGGT O U [z, > 3 ഗ Ω ø, [I4 ပ u O

Z Δ, Ŋ Z × ᆸ O ធា ഗ

CCAGAGCTGCTGGAGGGGCTGCATGCCCCCGGAGCCATTTTTAGGGTGGCTGTCGC Д, Д Σ U Ö ப Σ ы u L ы

TCTTCCTCAGCCAGGGCCTGAAGAAGYTCCTGCCTGCATTAGGAGTCANAGCCCGGCAG GCTGNAGGAGGAGGAGCAGGGGGTGCTGGAAGGTGCTGCAGGCCTTGCACGCTTGTTG TCGCGCCT

## FIG. 5A csg6

IGTCTACTCAAGGTATITICACAACTTATGACAACGAATGGTAGATACAGTGTAAAAAGTGCG S R ပ z T T Y D T

GCCTCTCCCAGAGAGTTAACGCAGCCAGACGGAGAGTCATACCCCAGCAGAGTCGAGCACT ტ ഗ O<sup>r</sup> O' Δ, ы > ĸ œ œ, Ø A z > G ပ GTACATACCTGGCTGGATTGAGAATGAAATACAATGGAATCCACCAAGACCTGAAAT z 3 ø Н ш Ω z ш Н 3 ပ

TAATAAGGATGATGTTCAACACAAGCAAGTGTGTTTCAGCAGAACATCCTCGGGAGGCTC ပ ഗ ഗ **%** S Ĺ, U > 0 × н о > Ω ×

ATTIGECCTICEGATGECCAAATGCECCATACCTGAECTETCTCCCACCTGGCCAAAE ပ Δ, D L F <u>а</u> Н Д A N P O ഗ Ø CACCGACCTGAAGGCGGAAATTCACGGGGGCAGTCTCATTAATCTGACTTGGACAGCTCC z L S L ပ ტ I н ы X X u u TGGGGATGATTATGACCATGGAACAGCTCACAAGTATATCATTCGAATAAGTACAAGTAT S ĸ X X X T F U I Ω Ω

TCTTGATCTCAGAGACAAGTTCAATGAATCTCTTCAAGTGAATACTACTGCTCTCATCCC > O L S ш Z × Ω ĸ L

## FIG. 5B csg6

AAAGGAAGCCAACTCTGAGGAAGTCTTTTTTAAACCAGAAAACATTACTTTTGAAAA z ធា ы ഗ z

TGGCACAGATCTTTTCATTGCTATTGAGGCTGTTGATAAGGTCGATCTGAAATCAGAAAT n U D X >

ATCCAACATIGCACGAGTATCTITGTITATICCICCACAGACTCCGCCAGAGACACCTAG P Q T

TCCTGATGAAACGTCTGCTCCTTGTGCCTAATATTCATATCAACAGCACCATTCCTGGCA

TTCACATTTTAAAAATTATGTGGAAGTGGGAGAACTGCAGTTGTCAATAGNCTAGG GGTGAATTTTTGTGCGGTGAATAATAATSATTTCANCCTTTTTTTTGRTTTTATAAAAA CGGNTNCCCATTGGGNNTNTNGNGGGGGGGGNNTTTTAA

#### FIG. 6 csg7

AGTCGCTCTCCTAGCCCTTCTGTGCCTCACCCTCTGGCAATGCCATTCAGGCCAGGTC VALLALCASPSGNA

TTCCTCCTATAGTGGAGTATGGAGGTGGTGGTGGAAAGCGATTCTCTCATTCTGGCAA SYSGEYGGGGK CCAGTIGGACGGCCCCATCACCGCGCTCCGAGTCAACATACTACATCGTAGG Q L D G P I T A L R V R V N T Y Y I V G

ပ ტ R Y G K V W S D Y V

GGAGGAGATCTTTCTGCACCCTGGGAATCAGTGATCCAGGTTTCTGGGAAGTACAAGTG E E I F L H P G E S V I Q V S G K Y K W

GTACCTGAAGAAGCTGGTATTTGTGACAAGAGGCCGCTATCTGTCTTTTTGGGAAAGA Y L K K L V F V T D K G R Y L S F G K D

CAGTGGCACAAGTTTCAATGCCGTCCCCTTGCACCCCCAACACGCGTGCTCCGCTTCATCAG FNAVPLHPNT TGGCCGGTCTGGTTCTCTCATCGATGCCATTGGCCTGCACTGGGATGTTTACCCCACTAG G R S G S L I D A I G L H W D V Y P T S CTGCAGCAGATGCTGAGCCTCCTTGGCAGGGGCACTGTGATGAGGAGTAAGAACT

CCTTATCACTAACCCCCATC

#### FIG. 7 csg8

TAAACTIGGTGTTITGTIGGTGTGTGTTTITGGTIGGTATITGGTAAGTIFITIGGT ATTTCATTTTCTCTTAGGCATGAATCATACAAAACTCAATATAGAGCAATGTTTGTAAT GAATTGTTCTATTAACAAAGAGGAGGTTCTAAGATATAAAGCCTCAGAGAACAGGAAGAA ATTCTCAAATTTTATCTAAATGGATAACTATTAACATAGAACATAAACCCCCAATTCTCC AAGGCGGGTCCATAAGAAGATGAGGTCTAACCGGGAAGATGCTGCTGAGAAGGCAGAGAC AGATGTGGAAGAAATCTATCACCCAGTCATGTGCACTGAATGTTCCACTGAAGTGGCAGT TTACGACAAGGATGAGTCTTTCATTTTTTCAATGTTTTTAGCAAGCCATTCCTAAACAGC CCAACTGGCATTTAATTACCCAATACTGTATATAAGGCAAATATGGACAGTTACTTTCCT CTTGCCTGTTCATATCCTTCAGTGACATTGAGGAAGCAGTGTTTTCTCTTTTTAAAGGGGA ATITITCCCCCTTATIGAIGGACIGATAITCATICIGITITITGAIGAACAITITGGAAACI GTCGGGCTTTTTATTAAAGCTCTGTAGAATTAAAATGTTCTGGAATTAT

#### FIG. 8 csg9

CAGGAGGAGAGCCTTCCCCCAAGCAACAATCCAGAGCAGCTGTGCAAACAACGGTGCAT GGTCATGGCTGCCAGAGCGCTCTGCATGCTGGGGCTGGTCCTGGCCTTGCTGTCCTCCAG AAATAAGGCCTCCTGGACCATGAATGCGAGTCCGCTGAGCTGCGTACCGGAGCCCACGGT WAARALCMLGLVL

Y V G L S A N GGTGGACTGCGGCTACCCCCCATGTCACCCCCAAGGAGTGCAACAACGGGGGGGTGCTTC E O N H V T P K

TGACTCCAGGATCCCTGGAGTGCCTTGGTGTTTCAAGCCCCTGACAGGGAAGCAGGAATG PGVPWCFKPLTGKQ

CACCTTCTGAGGCACCTCCAGCTGCCCCCGGCCGGGGGATGCGAGGCTCGGAGCACCCT

TGCCCGGCTGTGATTGCTGCAGGCACTGTTCATCTCAGCTTTTCTGTCCCTTTTGCTCCC GGAAGCGCTTCTGCTGAAAGTTCATATCTGGAGCCTGATGTTTAACGTAGTCCCATGCTC CACCCGAAAAAAAAAAAAAAAAAAAAA

# FIG. 9A CSG10

AAGCTCTTCTCACAGGACCAGCCACTAGCGCAGCTCGAGCGATGGCCTATGTCCCCGCAC 

CGGGCTACCAGCCCACCTACAACCCGACGCTGCCTTACTACCAGCCCATCCCGGGGGGC YOPTYNPTLPYYOPIPG TCAACGTGGGAATGTCTGTTTACATCCAAGGAGTGGCCAGCGAGCACATGAAGCGGTTCT Σ æ ப SVYIQGVAS TCGTGAACTTTGTGGTTGGGCAGGATCCGGGCTCAGACGTCGCCTTCCACTTCAATCCGC FVVGQDPGSDVA GGTTTGACGGCTGGACAAGGTGGTCTTCAACACGTTGCAGGGCGGGAAGTGGGGCAGCG ပ ပ O<sup>i</sup> H L z ĹĻ > > Ω 3

AGGAGAGGAGGAGCATGCCCTTCAAAAAGGGTCCCGCCTTTGAGCTGGTCTTCATAG PFKKGAAFELVF Σ S

TCCTGGCTGAGCACTACAAGGTGGTGATAATGGAAATCCCTTCTATGAGTACGGGCACC O M V T H L O V D G D L O L

TCAACTTCATCGGAGGCCAGCCCCTCCGGCCCCCAGGGACCCCCGGATGATGCCACCTTACC ს ბ ద

## FIG. 9B csg10

CTGGTCCCGGACATTGCCATCAACAGCTGAACAGCCTGCCCACCATGGAAGGACCCCCAA HOOLNSLPTME CCTTCAACCCGCCTGTGCCATATTTCGGGAGGCTGCAAGGAGGGCTCACAGCTCGAAGAA PPVPYFGRLQGLTA

CCATCATCATCAGGCTATGTGCCTCCCACAGGCAAGAGCTTTGCTATCAACTTCAAGGIII IKGYVPPTGFCACAGGCAAGAGCTTTGAAGG

TGGGCTCCTCAGGGGACATAGCTCTGCACATTAATCCCCGCATGGGCAACGGTACCGTGG U SGDIALHINPRMGN TCCGGAACAGCCTTCTGAATGGCTCGTGGGGATCCGAGGAGAAGAAGATCACCCACAACC EEKKIT SLLNGSWGS

CATITIGGICCCGGACAGITCITITGAICTGICCAITCGCIGIGGCITIGGAICGCITICAAGG R C G L D G Q F F D L S I TITACGCCAATGGCCAGCACCTCTITGACTITGCCCATCGCCTCTCGGCCTTCCAGAGGG YANGQHLFDFAHRLSA

TGGACACATTGGAAATCCAGGGTGATGTCACCTTGTCCTATGTCCAGATCTAATCTATTC D T L E I Q G D V T L S Y V Q I CTGGGGCCATAACTGGAAAACAGAATTATCCCCTAGGACTCCTTTCTAAGCCCCTA

## FIG. 10 csg11

CTTGATATTAAAACCAGTGAACAAGCATGACACCTCTCTGAAACCTATTAGTGTCTCC V D I K T S E T K H D T S L K P I S V S

GAGGACAACGATAACCGATCAGTGCTGAAAGGTGGTCCTTTCTCTGACAGCTACAGGTC Ω ഗ G 9 R S V L K G z Ω Z

TTTCAGTTCCATTTTCACTGGGGGGGGTACAAATGAGCATGGTTCAGAACATACAGTGGAT F Q F H F H W G S' T N E H G S E H T V D HWGSTNEHGSE

GGAGTCAAATATTCTGCCGAGCTTCACGTGGCTCACTGGAATTCTGCAAAGTACTCCAGC

FWTYPGSLTHPPLYESVTWI ATCTGTAAGGAGGATGTCAGTTCAGAGCAGTTGCGAGCCTTCTA ICKESISVSEQLAQFRSLL TTCTGGACCTACCCTGGCTCTCTGACTCATCCTCCTTTTATGAGAGTGTAACTTGGATC

TCAAT

## FIG. 11 csg12

CGGCTCCGGGCGGGCGTGGCTAGAAGGCGAGGCGCCCCGCGGACCATGGCGGCG ပ Ø R G A V T R R ሷ 3 æ

GCGCCGCACGAGCGCAGTCCAGAGGCGAGAAGACGAGGAAGAAGAGGAGGAGCAGTTGGTTCT Ш ្រ ы ш ш Ω ы ĸ 0 8 > G

GGTGGÄATTATCAGGAATTATTGATTCAGACTTCCTCTCAAAATGTGAAAATAATGCAA z Ш O × S D F L S Ω н Ö

GGTTTTGGGCATTGACACTGAGGCCCATTCTGGCAATGGACAGCTGTGTCTTTGCTGG ഗ L A M D H d œ, កា اج Ω

GGAGTATGAAGACACTCTAGGGACCTGTGTTATTTTGAAGAAAATGTTGAACATGCTGA ப z ப ы C V I F L G T

TACAGAAGGCAATAATAAAACAGTGCTAAAATATAAAATGCCATACAATGAAGAAGCTCAG Σ 工 ပ L K Y K > K L z

Z ы ы <u>்</u> × × T L L T E ATGGCTGCAAATAAGGATATGGTTTCTCCCTTTTGACCCAACAGGTTTTGTTAACTTTTTCTA O O F .ı മ ᆸ Ŀ 3 R H

CCATGAAATTGAGGACGAGGAAGTGGTAGCTTTCAGCCCCGGTTAAATCTTTTGGATTTTGGG

AGGGGTGGGGTTTCAATG

# FIG. 12 CSG13

GTGGCAGAAGAAAGATAGGTTGGAGAGAATTTGATTGCTCGATGATATAAAATGTTAAGTA CCATGAATGNATGCTGTTAGGCTGGAATGCGCCAAGATAAAAGGTGGGGCATGGCATCAA TCTTTTTTGGATGGTGAAAAACCTAAAATATATTGTGCCATTGTTTGCACACTTTGTG GATCTATAGAGATAGAAACTGGTCTGCCCAGGACTAGGGGTTGTCTAAGGATAAGGAGCT GAATATATTAAAAACCGGTTAATTGTACTCACTAAAATGTCCTCCTTCTTAAATTTAAGC TGTTTNCTGGACAAGAAAAGGGAAAGNNACCAAGGGGNAAAAATTTT

## FIG. 13 CSG14

GCCCTGGGCTTTGGGGGGGGGCTCCCAAACATGGTATGCAGAAATGTGATGGTTACAGGTCAG TACAACCTCAGTCCTTAGAACCCCTCCACACTTCAGCTCTGCACCCCACTTTCCTGTCATT TAITTATATAGGACTGTAGTTTTTTTAGTTCGAGAGCCTTTCGAAGCTTAATTTATATT CTTTCTTTGTACCTTTTTTCTAAAATTACCAAAGATATTACACAAAGGTAAATTAATGTT **CTCTGTTTTATGCTTTATCTGATGGCAAATATCCTCTTATTGTTGATCAAAGGGGGC** AAAAGAATTTAGAGGCAAATGAACAAGCGATAGGCTATTGCAACCTGAGAAAAAGAAACTG NTCCTTCCATCGTAAATTTAGNAGNCCAAGTAGGTAATGGGAACCAAAGTTGTTACTTTT TTCTAGTAGTTATTTTTCCCTTTTTTTTTTTTGTGGTACCTCTTACAGNGNCCCAAAACT CCATTCTCTTTAAAGGGGTTTTTATGGGGGGCTTACTGCAGGTTAAAAATTGGGGNCCAC CATITITIAAAGGGGGGTACCAGAAGGGAGGGGGGTCCCCNITINCNAAAAAAAAAATTG